

Application No. 10/004,429
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REMARKS

Claims 1-3 were originally filed in the application and allowed. Claims 4-63 were added by amendment in the reissue application. Claims 20-23, 40-48, and 50-63 were withdrawn from consideration by the Examiner. Claims 4-19, 24-39, and 49 are cancelled in this amendment. Claims 1-19, 24-39, and 49 stand rejected. Claims 64-95 are added by this amendment in substitution of claims 4-19, and 24-39. Claims 1-3 and 64-95 are pending.

In the Office Action, claims 1-63 are rejected as being based upon a defective reissue oath/declaration under 35 U.S.C. § 251. A substitute oath/declaration is appended hereto as Appendix A.

In the Office Action, it is stated that the original patent, or a statement as to loss or inaccessibility of the original patent, must be received before this reissue application can be allowed. The original patent is attached hereto as Appendix B.

In the Office Action, claims 4-63 are further objected to under 37 CFR 1.173(b)2 and (c) since the newly added claims have not been underlined and there is no statement mentioned in the Preliminary Amendment as to the support in the original specification for each of the newly added claims. Claims 4-63 are cancelled in this amendment and replaced by claims 64-95, non-inclusive of the claims withdrawn by the Examiner. The newly added claims have been underlined and support for each claim is provided hereinbelow, pursuant to 37 CFR 1.173(b)(2) and (c).

Claim No.	Reference in Specification Column:Lines
64.	2:61-64; 4:51-53
65.	7:64 – 8:14
66.	7:59-8:9
67.	8:50-53
68.	8:50-53
69.	7:64-8:4
70.	8:10-13
71.	8:2-4
72.	6:57-65
73.	4:20-22
74.	4:1-6
75.	2:61-67; 4:51-66
76.	5:8-14
77.	4:1-6
78.	7:59-8:30
79.	3:2-27; 8:46-50
80.	2:61-64; 4:51-53
81.	4:51-5:2
82.	8:12
83.	8:12-13
84.	5:12; FIG. 1/72
85.	5:46; 8:29
86.	2:54-67; 7:59-8:9
87.	6:19-26; 48-67
88.	6:64
89.	5:23-30
90.	6:35-36
91.	6:48-67
92.	6:15-18; 7:59-8:9; 29
93.	8:10-12
94.	4:1-6
95.	7:64-66

Claims 30 and 38 (now claims 86 and 94) are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. In this amendment, Applicant submitted support for each newly added claim above. Specifically, with regard to claim 86, support for digital data consisting of airspeed of the aircraft, aircraft attitude, flight control positions, landing gear status, and control surface positions can be found at Col. 7, line 59 – Col. 8, line 9. Support for engine status is found at Col.2, lines 54-67.

With regard to claim 94, support for estimating a crash site at the central ground based station is found at Col. 4, lines 1-6. Out of an abundance of caution, claim 94 has been amended to reflect that the crash site provided is an estimate.

In the Office Action, claims 4-17 and 19 (now claims 64-77 and 79) are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claims 64 and 75 now call for the generation of maintenance advice. Claim 15, line 11, is amended to remove – digital— to eliminate the problem with antecedent basis. In claim 65, line 2, “an aircraft” has been changed to “said aircraft” as suggested by the Examiner.

Per the Examiner’s suggestions, in claim 73, in line 2, “provides” has been changed to “provided” and the preamble of claim 79 has been rewritten to reflect its proper relation to claim 78. Applicant notes with appreciation the Examiner’s suggestions.

In the Office Action, claim 18 (now claim 78) is rejected under 35 U.S.C. § 102(b) as being anticipated by Kuroda, et al., U.S. Patent No. 5,381,140. Kuroda, et al., makes no mention of a global communication network. While items 3, 11c, and 211, as indicated in the Office Action, depict a satellite communication system having a single satellite and a single ground station, Kuroda, et al., makes no indication that the communication network is anything other than regional in nature. Kuroda, et al., does not even indicate the nature of the satellite, whether low earth orbit, geosynchronous, or otherwise.

While Applicant submits that claim 78 is not anticipated by Kuroda, et al., out of an abundance of caution, claim 78 has been amended to include the step of generating a maintenance advisory when the analysis indicates an advisory is in order. Kudora, et al., provides no disclosure of generating a maintenance advisory.

Claim 19 (now claim 79) is rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith, U.S. Patent No. 5,931,877, in view of Kuroda, et al. Smith discloses a maintenance system that provides remote trouble-shooting and technical data access to technicians through a handheld point-of-maintenance transceiver. The combination of Smith and Kuroda, et al., does not render the invention of claim 79 obvious.

Claim 79 depends from claim 78 which includes, among others things, the steps of: a) receiving an aircraft performance parameter via a global communication network at a ground based station; analyzing the aircraft performance parameter at the ground based station;

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col 4, line 4
Kuroda cites
a GPS satellite
sys. a global
communication
system.

generating an aircraft maintenance advisory when the analysis of the performance parameter indicates an aircraft problem; and archiving the aircraft performance parameter at the ground based station. Neither reference teaches analyzing the performance data at the ground based station to generate a maintenance advisory. As discussed below, this distinction is not trivial.

Smith discloses a maintenance system which conducts further analysis after the failure of a built-in-test (BIT) to reduce the occurrence of unit replacement when afterward there is no problem found or to identify the correct replaceable unit when there is ambiguity. To accomplish this, Smith discloses a handheld computer which uses information stored in a system of the aircraft to identify patterns which likely caused the BIT failure. The actual failure analysis takes place on the aircraft.

Smith's system includes access, via a worldwide communication network, to a maintenance database to obtain the latest test and troubleshooting protocols, as well as instructions for the technicians. Smith's system is dependent on the analysis taking place as part of the built in test which, by its very nature, is on the aircraft.

In contrast, the present invention takes aircraft performance information, generally information directed to a flight data recorder, and transmits it to a ground station to both archive the data and to analyze the data to identify failures at the earliest possible stages. The present invention does not require the aircraft systems to perform a built in test, as the processing required for analysis is more appropriately ground-based. This eliminates the replication of

testing hardware across every single aircraft, as would be required by the Smith system, as well as the need to match the BIT software on the aircraft to that aircraft's particular configuration.

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The purposes of the present invention are to identify failures at the earliest possible stage so that repairs can take place before failures cascade into a catastrophic problem. Further, so that when failures do occur, ground-based technicians and engineers can, virtually in real-time, review the data and formulate emergency procedures and, if the unthinkable happens, have access to black box data without the need to recover the black box. None of these are possible with the Smith system because, in the Smith system, there must first be a failure captured by the on-aircraft analysis of data.

Kuroda does not fill this gap. While Kuroda sends positional data to a ground based station for analysis, there is no mention of identifying failures or generating maintenance advisories. Combining Kuroda, et al., and Smith does not provide a system which monitors aircraft performance parameters in real-time to generate maintenance advice. Combining Kuroda and Smith does not even fully disclose the present invention, much less render it obvious.

Applicant submits that claim 78 is therefore in condition for allowance. Claim 79 depends from claim 78 and, at least for the reasons stated with regard to claim 78, is likewise in condition for allowance. Reexamination and allowance of claims 78 and 79 are respectfully requested.

In the Office Action, claims 1-5, 9-14, 24, and 28-35 (now claims 1-3, 64-65, 69-74, 80, and 84-91) are rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of

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Kuroda, et al. As with claims 78 and 79, the combination of Smith and Kuroda do not render the inventions of claim 1-3, 64-65, 69-74, 80, and 84-91 obvious.

First, with regard to claims 1, 2, and 3, the Office Action does not explain why one of ordinary skill in the art would select specific features from each of the references while rejecting other features, to arrive at the present invention.

The Office Action uses the present invention to pick and choose pieces from the prior art references, as well as filling gaps with the Examiner's own knowledge, to create the present invention when there simply is no motivation in these references to do so.

It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." (Quoting *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988)).

In re Fritch, 23 USPQ 2d 1780, 1784 (Fed. Cir. 1992). The Federal Circuit has mandated that a rejection under § 103(a) is only appropriate if there is a "teaching, suggestion, or incentive supporting the combination" relied upon. *In re Geiger*, 815 F.2d 868, 2 USPQ 2d 1276, 1278 (Fed. Cir. 1987). The Federal Circuit went further to state in *Akzo N.V. v. United States International Trade Commission*, 1 USPQ 2d 1241, 1246 (Fed. Cir. 1986), *cert denied*, 482 U.S. 909 (1987), that:

[P]rior art references before the tribunal must be read as a whole and consideration must be given where the references diverge and teach away from the claimed invention... Moreover, appellants cannot pick and choose among

individual parts of associated prior art references "as a mosaic to recreate a facsimile of the claimed invention."

Reviewing claim 1 relative to the cited references demonstrates the degree to which the rejection of claims 1, 2, and 3 relies on hindsight. First, some elements are absent from both references, such as: the display and control means connected to the processing means (as mentioned in the Office Action); and converting the aircraft performance and control parameters, when necessary, to digital form.

Further, some claim elements are disclosed only by gathering pieces of the element from both references. Neither reference fully discloses the element. For example: adding an aircraft identification is found only in Kuroda while the configuration label is found only in Smith.

These differences are significant in light of the differences in use between the cited references and the present invention. The present invention collects data in real-time while the aircraft is in flight while Smith collects prerecorded data on the ground after the built-in-test of an aircraft system has detected a failure. Kuroda, et al., is concerned only with transmitting precision position information to the ground to improve traffic control. Kuroda, et al., does not mention detecting failures.

Applicant submits claims 1-3 are in condition for allowance. Reconsideration and allowance of claims 1-3 is respectfully requested.

With regard to claim 4 (now claim 64), the claim has been amended to require transmission of performance data while in-flight and to require analysis of the data in real-time.

As discussed above, this is contrary to the teaching of Smith. Smith performs his transmission of data only while the plane is on the ground. ^{not true} Neither Smith nor Kuroda disclose generating maintenance advice in real-time.

col 6,
line 59
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Applicant respectfully submits that claim 64 is thus in condition for allowance. Claims 72-73 (formerly claims 12-13) depend from claim 64 and, at least for the reasons stated with regard to claim 64, are likewise in condition for allowance. Reexamination and allowance of claims 64 and 72-73 are respectfully requested.

With regard to claim 24 (now claim 80), the claim has been amended to require both the transmission and receipt of data while in-flight. This feature is undisclosed in either Smith or Kuroda, et al. Kuroda only discusses transmission from the aircraft to ground, which is consistent with the ADS standard. Further, Kuroda, et al., does not discuss global communication. Smith does not disclose airborne transmission, which would be inconsistent with the type of maintenance with which Smith is concerned. Thus, an airborne transceiver for digital communication between a ground station and an aircraft via a global communication network is simply not found in the suggested combination.

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See when request
data and receive
col 5, line 66

Applicant submits that claim 80 is thus in condition for allowance. Claims 84 (formerly claim 28), and 86-88 (formerly claims 30-32) depend from claim 80 and, at least for the reasons stated with regard to claim 80, are likewise in condition for allowance.

With regard to claim 33 (now claim 89), the claim has been amended to clarify that the

receipt of digital information takes place while the aircraft is airborne. As mentioned with regard to claim 80, Kuroda, et al., only discusses transmission from the aircraft to a ground station, not the reverse. Air-to-ground only transmission is consistent with the ADS as discussed by Kuroda, et al. Again, airborne communication is not discussed by Smith.

Applicant submits that claim 89 is thus in condition for allowance. Claims 90-91 (formerly claims 34-35) depend from claim 89 and, at least for the reasons stated with regard to claim 89, are likewise in condition for allowance. Reexamination and allowance of claims 89-91 are respectfully requested.

While claims 65 and 69 (formerly claims 5 and 9) depend from claim 64 and, at least for the reasons stated with regard claim 64, are likewise in condition for allowance, there is another distinction between the present invention and the cited references. While Smith does in fact disclose a data recorder, it should be noted that Smith suggests retrieving data previously stored in a data recorder after the aircraft fails a built-in-test. This is totally inconsistent with real-time reporting as is performed by the present invention. The present invention receives data directed to a flight recorder and transmits the data to a ground based station in real-time.

Applicant respectfully submits that claims 65 and 69 are thus in condition for allowance. Reconsideration and allowance of claims 65 and 69 are respectfully requested.

With regard to claims 10 and 11 (now claims 70 and 71), claims 70 and 71 depend from claim 64 and, at least for the reasons stated with regard to claim 64, likewise in condition for

allowance. Reexamination and allowance of claims 70 and 71 are respectfully requested.

In the Office Action, claims 6-8 (now claims 66-68), 15-17 (now claims 75-77), and 25-27 (now claims 81-83) are rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith, et al. and Kuroda, et al., and further in view of Monroe, U.S. Patent No. 5,798,458. Monroe discloses the use of an array of acoustic sensors to detect failures or terrorist events.

Claims 66-68 and 75-77 depend from claim 64 and, at least for the reasons stated with regard to claim 64, are likewise in condition for allowance. Claim 81-83 depend from claim 80 and, at least for the reasons stated with regard to claim 80, are likewise in condition for allowance. Reexamination and allowance of claims 66-68, 75-77, and 81-83 are respectfully requested.

In the Office Action, claims 36-39 (now claims 92-95) and 49 (no substitute claim) are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuroda, et al., in view of Monroe. With regard to claims 36-39, neither Kuroda, et al., nor Monroe discloses worldwide communication. In fact, with regard to Kuroda, et al., such communication is inconsistent with ADS, which addresses traffic control.

Monroe relies on communication with ground-based stations. As is well known in the art, without the aid of satellites, a land based station has a limited view of the sky, particularly radio frequencies which are practical for data transmission. Monroe simply provides no discussion of how to communicate with the aircraft beyond the ground stations view.

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Accordingly, the invention of claims 92-95 is simply not taught by the cited references.

Applicant submits that claims 92-95 are in condition for allowance. Reconsideration and allowance of claims 92-95 are respectfully requested.

No additional fee is believed to be due. However, if any fee is made payable by the filing of this paper, please consider this our authorization to charge the Deposit Account of the undersigned, No. 06-0540.

Respectfully submitted,

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